

REMARKS/ARGUMENTS

Claim 3 is amended to delete the preferred embodiment recited therein, and claim 20 is newly added to recite the preferred embodiment previously recited in claim 3. Claim 21 is newly added to rewrite the previously presented claim 4 in independent form including all of the limitations of the base claim 1. Claim 4 is cancelled. Claim 18 is amended to correct a typographical error. Claim 22 is newly added to recite the preferred embodiment previously recited in claim 4. No new matter is added. Entry of the above amendments is respectfully requested. Upon entry of the above amendments, claims 1-3 and 5-22 are pending. Reconsideration of the present application in view of the above amendments and the following remarks is respectfully solicited.

The Examiner indicated in the December 8, 2008 Office Action that claim 4 is allowable if rewritten in independent form including all of the limitations of the base claim and intervening claims. In response, Applicants have now added new claim 21 to rewrite claim 4 in independent form as suggested by the Examiner. Therefore, claim 21 and its dependent claim 22 are allowable.

Claim Objections

Claims 10 and 11 are objected to because they are incorrectly labeled as “currently amended.” As the Examiner correctly stated, there are in fact no changes to these claims. Claims 10 and 11 have now been correctly labeled as “original.”

Claim 18 is objected to because “AIO” is misspelled as “AID.” This typographical error has now been corrected.

Withdrawal of the objections is, therefore, respectfully requested.

Anticipation Rejections under 35 U.S.C. 102(e)

Claims 1-3, 9-11, 13 and 15 have been rejected under 35 U.S.C. §102(e) as being anticipated by Mueller (USP 6,717,353—newly cited by Examiner). Reconsideration and withdrawal of this rejection are respectfully requested.

As stated in MPEP Section 2131, “To anticipate a claim, the reference must teach every element of the claim.” Independent claim 1 recites a white-emitting LED which comprises, among other things, two phosphors. The first phosphor is from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M comprises Sr as the main constituent and D is doped with divalent Europium, $M = Sr$ or $M = Sr_{(1-x-y)}Ba_yCa_x$ with $0 \leq x+y < 0.5$ being used. The second phosphor is a nitridosilicate of formula $(Ca,Sr)_2Si_5N_8:Eu$.

The Examiner points to col. 2, lines 16-42 of Mueller as disclosing the first phosphor of present claim 1. For reasons expressed below, Mueller fails to disclose anywhere, including col. 2, lines 16-42, the first phosphor recited in claim 1 of the present application.

At col. 2, lines 16-21, Mueller discloses a luminescent material having the formula $(Sr_{1-a-b}Ca_bBa_c)Si_xN_yO_z:Eu_a$ ($a=0.002-0.2$, $b=0.0-0.25$, $c=0.0-0.25$, $x=1.5-2.5$, $y=1.5-2.5$, $z=1.5-2.5$). This formula is apparently different from the formula of the first phosphor of claim 1 of the present application. For example, 1) Mueller fails to disclose that each of x, y, and z (i.e., the relative amount of Si, O, and N) in its formula must be 2 at the same time to read on the amount of Si, O, and N as recited in claim 1 of the present application for the first phosphor; 2) nor does Mueller disclose that the total relative amount of the Eu and Sr (or Sr, Ba, and Ca) must be 1 to

read the amount of M and Eu as recited in claim 1 of the present application for the first phosphor. Therefore, Mueller fails to disclose at col. 2, lines 16-21 thereof the first phosphor as defined in claim 1 of the present application. Nor do Applicants find that Mueller discloses at other passages the first phosphor as defined in claim 1 of the present application.

The Examiner cites col. 3, lines 42-51 of Mueller to demonstrate that Mueller discloses the second phosphor of claim 1 of the present application. For reasons expressed below, Mueller fails to disclose anywhere, including col. 3, lines 42-51, the second phosphor as defined in claim 1 of the present application.

At col. 3, lines 42-51, Mueller discloses several examples of phosphors, such as $(\text{Sr}_{1-a-b-c} \text{Ba}_b \text{Ca}_c)_2 \text{Si}_5 \text{N}_8 : \text{Eu}_a$ ($a=0.002-0.2$, $b=0.0-1.0$, $c=0.0-1.0$); $(\text{Ca}_{1-x-a} \text{Sr}_x) \text{S} : \text{Eu}_a$ ($a=0.0005 \dots 0.01$, $x=0.0-1.0$); $\text{Ca}_{1-a} \text{SiN}_2 : \text{Eu}_a$ ($a=0.002-0.2$) and $(\text{B}_{1-x-a} \text{Ca}_x) \text{Si}_7 \text{N}_{10} : \text{Eu}_a$ ($a=0.002-0.2$, $x=0.0-0.25$). Except for the first formula $(\text{Sr}_{1-a-b-c} \text{Ba}_b \text{Ca}_c)_2 \text{Si}_5 \text{N}_8 : \text{Eu}_a$ ($a=0.002-0.2$, $b=0.0-1.0$, $c=0.0-1.0$), each of the other formulae listed at col. 3, lines 42-51 of Mueller is apparently different from the second phosphor $(\text{Ca}, \text{Sr})_2 \text{Si}_5 \text{N}_8 : \text{Eu}$ as defined in claim 1 of the present application.

As to the first formula $(\text{Sr}_{1-a-b-c} \text{Ba}_b \text{Ca}_c)_2 \text{Si}_5 \text{N}_8 : \text{Eu}_a$ ($a=0.002-0.2$, $b=0.0-1.0$, $c=0.0-1.0$) of Mueller, it fails to disclose that the relative total amount of Ca and Sr must be 2 as defined in claim 1 of the present application for the second phosphor of the present application.

For reasons expressed above, Mueller fails to disclose every element of claim 1 of the present application. Therefore, claim 1 of the present application is not anticipated by Mueller under 35 U.S.C. 102(e). For at least the same reasons, claim 3, 9-11, 13 and 15, each of which depends from claim 1, are also not anticipated by Mueller under 35 U.S.C. 102(e). Withdrawal of the anticipation rejection is, therefore, respectfully requested.

Applicants realize that perhaps by using hindsight and based on the disclosure of the present invention, one may pick, select, and combine from the numerous possibilities disclosed in Mueller to obtain first and second phosphors of claim 1 of the present application. Nevertheless, nowhere does Mueller *per se* provide any reason for a person of ordinary skill in the art to do so. Merely relying on a hindsight reasoning to establish obviousness of a claim is not permissible under U.S. patent law. Therefore, claim 1 of the present application is also not obvious over Mueller under 35 U.S.C. 103(a) (the Examiner has not issued any obviousness rejection of claim 1 in view of Mueller alone under 35 U.S.C. 103(a)).

Obviousness Rejections under 35 U.S.C. 103(a)

Claims 5-7, 12, 18 and 19 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Mueller, in view of Delsing (US Pub. No. 2005/02025845—newly cited by Examiner).

Claims 8, 16 and 17 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Mueller in view of Bischoff (USP 6,158,882—previously cited by Examiner).

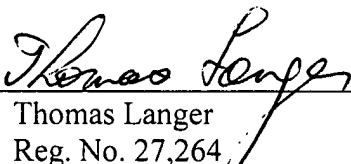
Claim 14 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Mueller in view of Ellens (USP 2002/0105269—newly cited by Examiner).

Each of the above-listed obviousness rejections relies on Mueller as the primary reference in combination with secondary references. Each of the secondary references is cited to demonstrate that certain additional features recited in dependent claims have been known in the art. None of the secondary references can remedy the deficiencies discussed above in connection with claim 1. Therefore, a combination of the primary reference Mueller with any of these secondary references would not lead to the invention recited in any claim that depends from

independent claim 1, such as claims 5-8, 12, 14, and 16-19. Withdrawal of the obviousness rejections is, therefore, respectfully requested.

Based on the foregoing, it is believed that the present application has been placed in condition for allowance. Early and favorable consideration is respectfully requested.

Respectfully submitted,
COHEN PONTANI LIEBERMAN & PAVANE LLP

By  _____
Thomas Langer
Reg. No. 27,264
551 Fifth Avenue, Suite 1210
New York, New York 10176
(212) 687-2770

Dated: June 9, 2009